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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

CHEN, QING

ART UNIT PAPER NUMBER

2191

DATE MAILED: 07/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/726,308	Applicant(s) GAFTER ET AL.	
	Examiner Qing Chen	Art Unit 2191	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>20031201</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This is the initial Office action based on the application filed on December 1, 2003.

Claims 1-21 are currently pending and have been considered below.

Specification

2. The disclosure is objected to because of the following informalities:
 - The specification contains the following typographical errors:
 - The word “involves” should not contain the letter “s” at the end in the first sentence of paragraph [0002], since “current methods” is a plural noun.
 - The phrase “the using static data” should presumably be read “the use of static data” in the first sentence of paragraph [0002].
 - The letter “f” in “factory” should be capitalized in the last sentence of paragraph [0008], since “factory” is the first word of the sentence.
 - There should be a hyphen (-) between the words “computer” and “readable” in the first sentence of paragraph [0024]. Applicant is advised to make the correction in order to keep the terminology consistent throughout the specification and claims.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. **Claims 8-21** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 8-14 recite computer-readable storage medium as a claimed element. However, it is noted that the specification describes such medium as embracing computer instruction signals embodied in a transmission medium (with or without a carrier wave upon which the signals are modulated) in page 6, paragraph [0024]. Claims that recite nothing but the physical characteristics of a form of energy, such as a frequency, voltage, or the strength of a magnetic field, define energy or magnetism *per se*, and as such are nonstatutory natural phenomena. *O'Reilly v. Morse*, 56 U.S. (15 How.) 62, 112-14 (1853). Moreover, it does not appear that a claim reciting a signal encoded with functional descriptive material falls within any of the categories of patentable subject matter set forth in § 101.

Claims 15-21 are directed to apparatus. However, the mechanisms for performing the recited functionalities can be reasonably interpreted as computer software modules—software *per se*, since the specification lacks an explicit definition of what a mechanism is. Also, there is no corresponding structure in the claims that would suggest the recited limitations as being part of an apparatus. Therefore, the claims are directed to apparatus of functional descriptive material

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per se, and hence non-statutory. The claims constitute computer programs representing computer listings *per se*. Such descriptions or expressions of the programs are not physical “things.” They are neither computer components nor statutory processes, as they are not “acts” being performed. Such claimed computer programs do not define any structural and functional interrelationships between the computer program and other claimed elements of a computer, which permit the computer program’s functionality to be realized. In contrast, a claimed computer-readable medium encoded with a computer program is a computer element, which defines structural and functional interrelationships between the computer program and the rest of the computer, that permits the computer program’s functionality to be realized, and is thus statutory. See *Lowry*, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. **Claims 1-6, 8-13, and 15-20** are rejected under 35 U.S.C. 102(b) as being anticipated by **Thatte et al.** (US 6,442,620).

As per **Claim 1**, Thatte et al. disclose a method for facilitating typesafe software design while supporting structured composition of a software system, comprising:

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- A. Receiving a first invocation of the software system (*see Column 9, Lines 15-17; and Column 10, Lines 16-20*);
- B. Assigning a first context to the first invocation (*see Column 12, Lines 8-14*);
- C. Examining the first invocation to locate components of the first invocation (*see Column 12, Lines 40-46*);
- D. Registering a unique factory to build each component, wherein these factories are registered using the first context (*see Column 10, Lines 38-44*); and
- E. When a component is needed, building the component using a factory associated with the component, whereby building the component after each component has a registered factory eliminates potential problems with initialization circularity (*see Column 10, Lines 44-49*).

As per **Claim 2**, Thatte et al. disclose a method for facilitating typesafe software design while supporting structured composition of a software system **as in Claim 1 above**, and further disclose that the method comprising:

- A. Receiving a second invocation of the software system (*see Column 9, Lines 15-17; and Column 10, Lines 16-20*);
- B. Assigning a second context to the second invocation (*see Column 12, Lines 8-14*);
- C. Examining the second invocation to locate components of the second invocation (*see Column 12, Lines 40-46*);
- D. Registering a unique factory to build each component, wherein these factories are registered using the second context (*see Column 10, Lines 38-44*); and

E. When a component is needed, building the component using a factory associated with the component, whereby building the component after each component has a registered factory eliminates problems with initialization circularity (*see Column 10, Lines 44-49*).

As per **Claim 3**, Thatte et al. disclose a method for facilitating typesafe software design while supporting structured composition of a software system **as in Claim 2 above**, and further disclose that the components from the second invocation are not available to the first invocation (*see Column 13, Lines 31-33 and 53-58*).

As per **Claim 4**, Thatte et al. disclose a method for facilitating typesafe software design while supporting structured composition of a software system **as in Claim 1 above**, and further disclose that the method comprising providing an additional factory for an extended component of the first invocation (*see Column 11, Lines 9-22*).

As per **Claim 5**, Thatte et al. disclose a method for facilitating typesafe software design while supporting structured composition of a software system **as in Claim 1 above**, and further disclose that registering the unique factory to build each component involves placing a key and a related factory identifier into a storage structure (*see Column 10, Lines 24-27*).

As per **Claim 6**, Thatte et al. disclose a method for facilitating typesafe software design while supporting structured composition of a software system **as in Claim 5 above**, and further disclose that building the component using the factory associated with the component involves

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using the key to retrieve the related factory identifier from the storage structure (*see Column 10, Lines 27-31*).

As per **Claim 8**, Thatte et al. disclose a computer-readable storage medium storing instructions that when executed by a computer cause the computer to perform a method for facilitating typesafe software design while supporting structured composition of a software system, comprising:

- A. Receiving a first invocation of the software system (*see Column 9, Lines 15-17; and Column 10, Lines 16-20*);
- B. Assigning a first context to the first invocation (*see Column 12, Lines 8-14*);
- C. Examining the first invocation to locate components of the first invocation (*see Column 12, Lines 40-46*);
- D. Registering a unique factory to build each component, wherein these factories are registered using the first context (*see Column 10, Lines 38-44*); and
- E. When a component is needed, building the component using a factory associated with the component, whereby building the component after each component has a registered factory eliminates potential problems with initialization circularity (*see Column 10, Lines 44-49*).

As per **Claim 9**, Thatte et al. disclose a computer-readable storage medium storing instructions that when executed by a computer cause the computer to perform a method for facilitating typesafe software design while supporting structured composition of a software system as in **Claim 8 above**, and further disclose that the method comprising:

- A. Receiving a second invocation of the software system (*see Column 9, Lines 15-17; and Column 10, Lines 16-20*);
- B. Assigning a second context to the second invocation (*see Column 12, Lines 8-14*);
- C. Examining the second invocation to locate components of the second invocation (*see Column 12, Lines 40-46*);
- D. Registering a unique factory to build each component, wherein these factories are registered using the second context (*see Column 10, Lines 38-44*); and
- E. When a component is needed, building the component using a factory associated with the component, whereby building the component after each component has a registered factory eliminates problems with initialization circularity (*see Column 10, Lines 44-49*).

As per **Claim 10**, Thatte et al. disclose a computer-readable storage medium storing instructions that when executed by a computer cause the computer to perform a method for facilitating typesafe software design while supporting structured composition of a software system **as in Claim 9 above**, and further disclose that the components from the second invocation are not available to the first invocation (*see Column 13, Lines 31-33 and 53-58*).

As per **Claim 11**, Thatte et al. disclose a computer-readable storage medium storing instructions that when executed by a computer cause the computer to perform a method for facilitating typesafe software design while supporting structured composition of a software system **as in Claim 8 above**, and further disclose that the method comprising providing an additional factory for an extended component of the first invocation (*see Column 11, Lines 9-22*).

As per **Claim 12**, Thatte et al. disclose a computer-readable storage medium storing instructions that when executed by a computer cause the computer to perform a method for facilitating typesafe software design while supporting structured composition of a software system **as in Claim 8 above**, and further disclose that registering the unique factory to build each component involves placing a key and a related factory identifier into a storage structure (*see Column 10, Lines 24-27*).

As per **Claim 13**, Thatte et al. disclose a computer-readable storage medium storing instructions that when executed by a computer cause the computer to perform a method for facilitating typesafe software design while supporting structured composition of a software system **as in Claim 12 above**, and further disclose that building the component using the factory associated with the component involves using the key to retrieve the related factory identifier from the storage structure (*see Column 10, Lines 27-31*).

As per **Claim 15**, Thatte et al. disclose an apparatus for facilitating typesafe software design while supporting structured composition of a software system, comprising:

A. A receiving mechanism configured to receive a first invocation of the software system (*see Column 9, Lines 15-17; and Column 10, Lines 16-20*);

B. An assigning mechanism configured to assign a first context to the first invocation (*see Column 12, Lines 8-14*);

C. An examining mechanism configured to examine the first invocation to locate components of the first invocation (*see Column 12, Lines 40-46*);

D. A registering mechanism configured to register a unique factory to build each component, wherein these factories are registered using the first context (*see Column 10, Lines 38-44*); and

E. A building mechanism configured to build the component using a factory associated with the component when a component is needed, whereby building the component after each component has a registered factory eliminates potential problems with initialization circularity (*see Column 10, Lines 44-49*).

As per **Claim 16**, Thatte et al. disclose an apparatus for facilitating typesafe software design while supporting structured composition of a software system as in **Claim 15** above, and further disclose that:

A. The receiving mechanism is further configured to receive a second invocation of the software system (*see Column 9, Lines 15-17; and Column 10, Lines 16-20*);

B. The assigning mechanism is further configured to assign a second context to the second invocation (*see Column 12, Lines 8-14*);

C. The examining mechanism is further configured to examine the second invocation to locate components of the second invocation (*see Column 12, Lines 40-46*);

D. The registering mechanism is further configured to register a unique factory to build each component, wherein these factories are registered using the second context (*see Column 10, Lines 38-44*); and

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E. The building mechanism is further configured to build the component using a factory associated with the component when a component is needed, whereby building the component after each component has a registered factory eliminates problems with initialization circularity (*see Column 10, Lines 44-49*).

As per **Claim 17**, Thatte et al. disclose an apparatus for facilitating typesafe software design while supporting structured composition of a software system as in **Claim 16 above**, and further disclose that the components from the second invocation are not available to the first invocation (*see Column 13, Lines 31-33 and 53-58*).

As per **Claim 18**, Thatte et al. disclose an apparatus for facilitating typesafe software design while supporting structured composition of a software system as in **Claim 15 above**, and further disclose that the method comprising providing an additional factory for an extended component of the first invocation (*see Column 11, Lines 9-22*).

As per **Claim 19**, Thatte et al. disclose an apparatus for facilitating typesafe software design while supporting structured composition of a software system as in **Claim 15 above**, and further disclose that registering the unique factory to build each component involves placing a key and a related factory identifier into a storage structure (*see Column 10, Lines 24-27*).

As per **Claim 20**, Thatte et al. disclose an apparatus for facilitating typesafe software design while supporting structured composition of a software system as in **Claim 19 above**, and

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further disclose that building the component using the factory associated with the component involves using the key to retrieve the related factory identifier from the storage structure (*see Column 10, Lines 27-31*).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. **Claims 7, 14, and 21** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Thatte et al.** (US 6,442,620) in view of **Gibbons et al.** (US 5,761,511).

As per **Claim 7**, **Thatte et al.** disclose a method for facilitating typesafe software design while supporting structured composition of a software system **as in Claim 6 above**. However, **Thatte et al.** does not explicitly disclose that the storage structure includes a hash table.

In the same field of endeavor, **Gibbons et al.** discloses a system and method for extending the functionality of data structures, where the data structures are made up of connected collections of objects, and mechanisms for projecting such data structures of objects from one type space to another. In the system, a shadow map is implemented by calling upon a factory object and the results are cached in a hash table (*see Column 9, Lines 33-35*).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a hash table as a storage structure in the system of Thatte et al., since hash table is a very common type of lookup structure and can be used to implement a configuration database. One would have been motivated to utilize a hash table as a storage structure in order to provide a constant lookup time on average, regardless of the number of items in the hash table.

As per **Claim 14**, Thatte et al. disclose a computer-readable storage medium storing instructions that when executed by a computer cause the computer to perform a method for facilitating typesafe software design while supporting structured composition of a software system **as in Claim 13 above**. However, Thatte et al. does not explicitly disclose that the storage structure includes a hash table.

In the same field of endeavor, Gibbons et al. discloses a system and method for extending the functionality of data structures, where the data structures are made up of connected collections of objects, and mechanisms for projecting such data structures of objects from one type space to another. In the system, a shadow map is implemented by calling upon a factory object and the results are cached in a hash table (*see Column 9, Lines 33-35*).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a hash table as a storage structure in the system of Thatte et al., since hash table is a very common type of lookup structure and can be used to implement a configuration database. One would have been motivated to utilize a hash table as a storage

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structure in order to provide a constant lookup time on average, regardless of the number of items in the hash table.

As per **Claim 21**, Thatte et al. disclose an apparatus for facilitating typesafe software design while supporting structured composition of a software system **as in Claim 20 above**. However, Thatte et al. does not explicitly disclose that the storage structure includes a hash table.

In the same field of endeavor, Gibbons et al. discloses a system and method for extending the functionality of data structures, where the data structures are made up of connected collections of objects, and mechanisms for projecting such data structures of objects from one type space to another. In the system, a shadow map is implemented by calling upon a factory object and the results are cached in a hash table (*see Column 9, Lines 33-35*).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a hash table as a storage structure in the system of Thatte et al., since hash table is a very common type of lookup structure and can be used to implement a configuration database. One would have been motivated to utilize a hash table as a storage structure in order to provide a constant lookup time on average, regardless of the number of items in the hash table.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

A. **Miloushev et al.** (US 6,226,692) disclose a system and method for designing and constructing software components and systems by assembling them from independent parts, which is compatible with and extends existing object models.

B. **Eckardt et al.** (US 6,370,682) disclose development of software that is flexible and platform independent so that it can be reused without manually reworking.

C. **Thomas** (US 6,490,719) discloses a system and method for specifying and combining a new type of component specification known as a component interface that is used to generate complex object structures and their interactions and that causes these objects to automatically interact according to the information contained in the component interfaces.

D. **Garcia et al.** (US 6,778,990) disclose a method for dynamic component activation through the use of a database as a repository for registration information.

E. **Green et al.** (US 6,854,107) disclose a system and method for designing a software architecture for utilizing software components in building extensible N-tier software applications.

F. **Vermeire et al.** (US 6,931,623) disclose a method of accessing data and logic on existing systems through dynamic construction of software components.

G. **Yoneyama** (US 6,996,801) discloses a system and method for automatically creating a program such as a software component and a client program using this component.

H. **Satuloori et al.** (US 2003/0172370) disclose systems and methods for dynamically changing an application program in response to changes in requirements for the application.

I. **Stewart et al.** (US 2004/0006762) disclose a system and method for automatically generating Component Object Model (COM) components for use in COM-compliant applications from functions developed in a MATLAB programming environment.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Qing Chen whose telephone number is 571-270-1071. The Examiner can normally be reached on Monday through Thursday from 7:30 AM to 4:00 PM. The Examiner can also be reached on alternate Fridays.

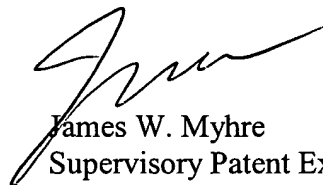
If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, James W. Myhre, can be reached on 571-270-1065. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

QC / *QC*
June 28, 2006


James W. Myhre
Supervisory Patent Examiner